# SPECIFICATIONS

**KEM**

| Model | MKV-710D | MKC-710D |
|---|---|---|
| Name | Karl Fischer Moisture Titrator [Volumetric method] | Karl Fischer Moisture Titrator [Coulometric method] |
| Measuring range | 1) Water content: 0.1 to 500mgH$_2$O (depends on KF reagent factor)<br>2) Concentration: 1ppm to 100%H$_2$O | 1) Water content: 1$\mu$g to 300mg (depends on reagent)<br>2) Bromine index: 8$\mu$g to 300mg (depends on reagent) |
| Precision | Burette precision<br> Volume: 10mL<br> Discharge precision: 10mL±0.015mL, Repeatability: ±0.005mL | Reproducibility<br> Less than 0.3%CV(n=10)/water-standard 1mgH$_2$O<br> Per KEM standard measurement conditions and standard liquids |
| Endpoint detection | Polarized potential level detection with a twin platinum electrode | Alternate current polarization method with a twin platinum electrode |
| Endpoint determination | Determined when the specified potential level is maintained for the preset time.<br>End time range: 1 to 99 sec | Determined by judging drift stability (settable) or limiting measurement time |
| Additional features | 1) Automatic adjustment of drift level<br>2) Automatic start by sensing sample discharged in titration cell<br>3) Stores up to 10 blank values<br>4) Stirrer with automatic solvent change unit or manual solvent charge unit, or standard stirrer | |
| Key operation | Touch panel | |
| Displays | 8.4-inch color LCD 800 x 600 dots<br>English / Japanese / Mandarin Chinese<br>Simultaneous 2-channel display | |
| Calculation | Concentration of water content, statistics data processing (mean, standard deviation, and relative standard deviation), automatic input of blank values<br>Automatic input of reagent factor value | |
| Data storage | Method: 120 (per channel)<br>Measurement results: 5,000 samples (per channel)<br>Operation history: 100,000 (Total for 2 channels) | |
| DI support function | Regulatory Standard Compliance:   Compliance with FDA 21 CFR Part 11<br>Access Restrictions:   Operator authentication by operator ID and password<br>Rights Administration:   Each operator is assigned to a specific right group<br>Audit Trail:   Operation history is automatically recorded<br>Electronic Approval/Electronic Signature: Electronic approval and signature based on the workflow<br>Backup/Restoration:   Automatic backup with the predetermined period<br>Archive/Archive View:   Data storage. Archived data can be viewed on the main control unit<br>Data Capacity:   The remaining capacity can be checked any time via an icon on the main screen<br>Security Setup:   Password length and lockout settings can be set<br>LIMS Connection:   Data output to LIMS systems | |

*The IC chip in the MKV-710 burette cannot be used.*

## Data Integrity Support Models

Karl Fischer Moisture Titrator [Volumetric method]

# MKV–710D

Karl Fischer Moisture Titrator [Coulometric method]

# MKC–710D

**For compliance with FDA 21 CFR Part 11**

MKV–710D

MKC–710D

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**KYOTO ELECTRONICS MANUFACTURING CO.,LTD.**

MKV-710D and MKC-710D are Karl Fischer Moisture Titrators developed to support DI (Data Integrity) based on GMP (Good Manufacturing Practice).

## Access Restrictions

Operators are authenticated to log on by an operator ID and password. Only one operator can log on the system and operators can be changed via the logon/logoff function. Up to 100 operators can be registered, and an ID and password are registered for each operator.

*Only one operator can log on even when 2 channels are connected. Operator cannot log off during measurement.*

## Rights Administration

You can assign the authorities to edit and set the functions to each operator. In addition to five rights groups, you can set up the rights groups at your option.

## Audit Trail

Operation histories, such as "who", "when", and "what" for each operation are automatically recorded in the system. When a setting is changed, the operator is required to input the "reason". Operation histories can be traced from criteria of "who", "when" or "what".

## Electronic Approval / Electronic Signature

The electronic approval workflow consists of five stages: Check, Confirmation, and Approval, are in sequence, as well as Denial, and Unchecked status. Password is required for each stage by electronic signature. The signature details can be checked in the signature log.

## Backup/Restoration/Archive

Data can be backed up to an external HDD or USB memory. Automatic backup can be performed with the predetermined period, and the data can be restored only to the main control unit which performed the backup. Archive function can be used to transfer data.

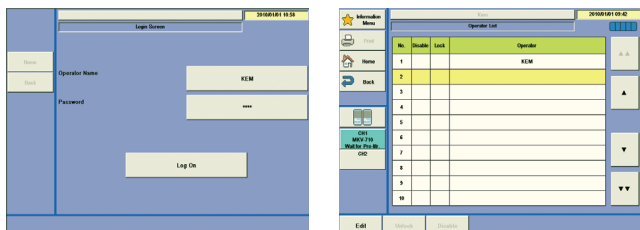*External HDD or USB memory is not supplied.*



# FEATURES

MKV-710D and MKC-710D are Karl Fischer Moisture Titrators equipped with data integrity support functions without a PC.
Simultaneous measurement can be performed with up to two units and the large color LCD touch panel can be linked wirelessly.
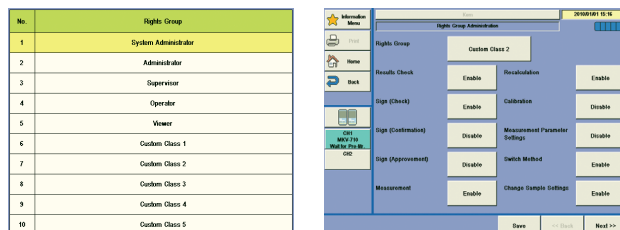
## Access Restrictions

Operators are authenticated to log on by an operator ID and password. Only one operator can log on the system and operators can be changed via the logon/logoff function. Up to 100 operators can be registered, and an ID and password are registered for each operator.

*Only one operator can log on even when 2 channels are connected. An operator cannot log off during measurement.*

## Rights Administration

You can assign the authorities to edit and set the functions to each operator. There are five preset rights groups, and you can also create up to 10 rights groups arbitrarily according to the usage at your site. Reliability improved by assigning each operator to a rights group.

## Audit Trail

Operators history, such as "who", "when", and "what" for each operation is automatically recorded in the system. When a setting is changed, the operator is required to input the "reason". Operation histories can be traced from criteria of "who", "when" or "what". When changing data, the data changed before and after is recorded.
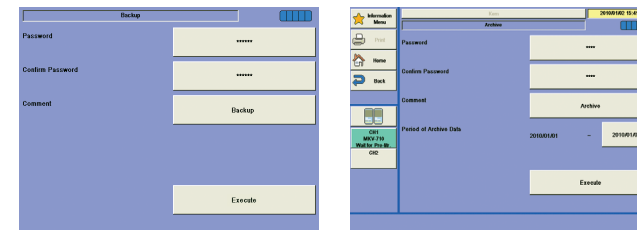
## Electronic Approval/Electronic Signature

The electronic approval workflow consists of five stages: Check, Confirmation, and Approval, are in sequence, as well as denial, and unchecked status. The signature level cannot be skipped, and always has to be signed in the Check, Confirmation, and Approval sequence. A password is required when signing. The signature details can be checked in the signature log.

## Backup/Restoration/Archive

Data can be backed up to an external hard disk or USB memory. Automatic backup can be performed with the predetermined period. The data can be restored only to the main control unit which performed the backup. Restore function enables quick recovery from troubles such as system failure. Archive function can be used to transfer data.

— *External hard disk or USB memory is not supplied. The external hard disk must be a self-powered type.*
— *External hard disk must have a capacity of 500GB to 2TB and be in exFAT format.*
— *USB memory must have a capacity of 2GB to 64GB and be in FAT32 format.*
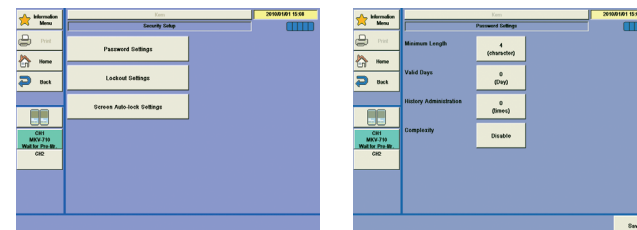
## Data Capacity

Up to 5,000 measurement data can be saved per channel. When the storage limit is reached, the next measurement cannot be started, and an error message will be displayed. It is secure because the old data will not be overwritten. Remaining data capacity can be checked any time with an icon displayed on the screen.

| | |
|---|---|
| : | 100% |
| : | 80% |
| : | 60% |
| : | 40% |
| : | 20% |
| : | 0% |

## Security Settings

Password length and valid date for the password can be set. The following functions are also provided: Lockout against the unauthorized accesses, and automatic screen lock when the main control unit is not used for a predetermined time. Operators can also lock the main control unit when the operators are away from desk. Any unauthorized access can be recorded.

## LIMS Compatible

The connection with LIMS uses the RS-232C communication protocol. Measurement results can be exported to the LIMS system instead of saved internally. We have a proven record of connecting to major systems in Japan and overseas.

- NuGenesis LMS (Nihon Waters K.K.)
- Thermo Scientific SampleManager LIMS (Thermo Fisher Scientific K.K.)
- PQDAMS (Hitachi, Ltd.)
- Lab-Aid (Yokogawa Solution Service Corporation)

*For any questions about connection to the system, please contact our distributors.*